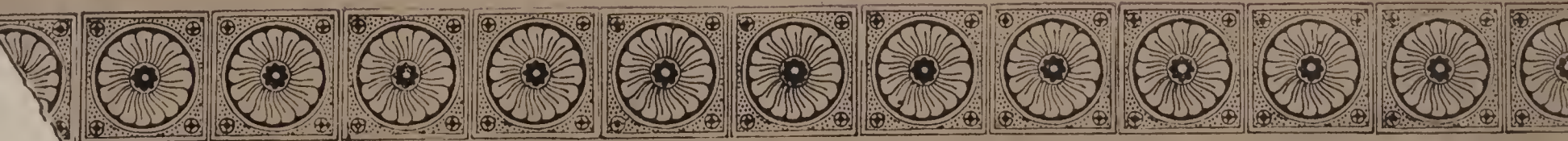


SOMETHING
ABOUT SOAP.

✓
Procter & Gamble



SOMETHING

ABOUT SOAP.

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PROCTER & GAMBLE,
CINCINNATI, U. S. A.

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SOMETHING ABOUT SOAP.



THE old folks who were "raised" in the country will at once recognize the scene so cleverly depicted above. It is the family soap-making—something which is almost a thing of the past. Home-made soap has gone with home-made candles. The only good feature about it was that the housekeeper "knew what it was made of." It was rarely a success; it was either a soft, "putty-like," greasy mass, that had no effect, as far as cleansing goes, or else it was so strong with lye that it reddened and burned the skin in using it, and undoubtedly was as responsible for the holes in clothing as the actual wear, for the over-strong lye attacks the fiber. The modern housewife buys her soap ready-made. She generally buys a certain kind, either because it looks attractive, smells nice, or seems cheap; but, generally, because the

grocer recommends it. Why he should recommend one kind more than another may be laid to the score of profit—"that which pays best, sell most of" is his motto. The reason the grocer does not recommend soap that has lasting qualities is because his customers would use less soap, so would not patronize him so often. She should use her own judgment, remembering that "the best is the cheapest"; for, next to our eating, drinking, and clothing, soap is the most important of all the thousand-and-one things that go to make up the sum of our every-day life. That the public may know something about soap-making, this little book is written, in a plain, untechnical, and, it is hoped, interesting manner, aided by a series of engravings, illustrative of the process of manufacture used by

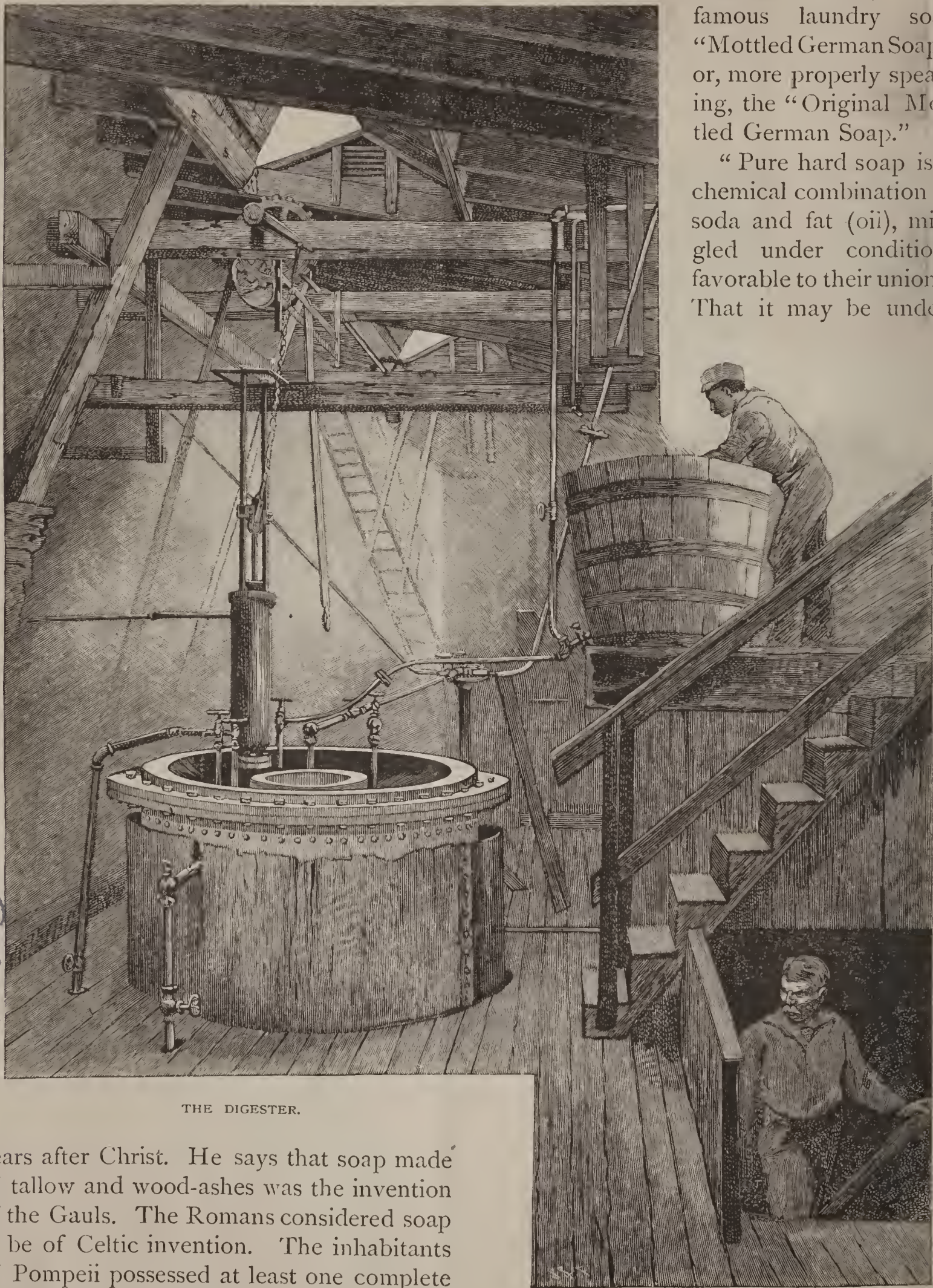
the well-known firm of PROCTER & GAMBLE, Cincinnati.

The earliest mention of soap—outside the Bible—is by Pliny the Elder, twenty-three

soap still in a state of preservation. To the Germans must be given the credit of first manufacturing both hard and soft varieties of soap, hence the propriety of Procter &

Gamble calling their famous laundry soap "Mottled German Soap," or, more properly speaking, the "Original Mottled German Soap."

"Pure hard soap is a chemical combination of soda and fat (oil), mingled under conditions favorable to their union." That it may be under-



THE DIGESTER.

years after Christ. He says that soap made of tallow and wood-ashes was the invention of the Gauls. The Romans considered soap to be of Celtic invention. The inhabitants of Pompeii possessed at least one complete soap-boiling establishment, which, when brought to view after having been buried more than 1700 years, was found to contain

stood just what constitutes "favorable conditions," and how necessary it is to have an



COOLING-ROOM.

intelligent supervision over every detail of the process, we shall farther along describe the methods pursued in making the best known hard soap.

In soap-making, as in everything else, the best results are obtained only by the use of the best materials and most approved methods, combined with long and intelligent experience. Now for the materials. The basis for all soaps is either Grease, Tallow, or Oil,—grease being the least desirable, as it does not yield as good soap as tallow or oil. The latter is far superior to either of the other two. Grease is made from the fat of animals that have died, the refuse of kitchens, and other offal. Tallow is made from the fresh fat of sheep and cattle, so is not so objectionable or dangerous as grease. Oils suitable for soap are Palm, Cocoa-nut, Cotton-seed, Olive, and Saponified Red Oil, the latter being especially desirable for laundry soap, as strength and durability are required. Genuine Mottled German Soap is made of Saponified Red Oil only, which is superior to other “soapers’” oils inasmuch as it is what is known as a chemically “free” oil; it readily takes hold of the alkali, and the result is a complete saponification, so a complete soap. It is hard even when fresh; there is little or no loss in weight by shrinkage, so the purchaser receives the full amount of soap for his money: that is,

he does not pay for water at the price of soap. To the vast manufactory of Procter & Gamble, in Cincinnati, we go for our illustrations and our description of their process, for there the most recent and most perfect of scientific and mechanical appliances are kept at work, and the latest of scientific research are constantly utilized. Every step of the process, from the time the tallow from which the Red Oil is made is deposited in the emptying room until the soap is packed in boxes and sent to all parts of the country, is full either of interest to the student or entertainment to the simply curious.]

As before mentioned, this firm make their Mottled German Soap of Saponified Red Oil. That the reader may know what this oil is, we must first mention, by way of explanation, that Procter & Gamble are the largest manufacturers of candles in the country, and they obtain their materials for making candles from their process of making the oil for their soap. The combination of the two industries is essential to the successful and economical production of both. The first step is the saponifying of



COLD PRESSING.

the tallow; it is accomplished in an apparatus called, in chandlers' parlance, the "digester" (of which there are three in operation, although, for convenience, but one is shown in the illustration). It consists of a copper cylinder, inclosed within an iron one, and a pump arranged to raise the contents of the inner cylinder from the bottom to the top. Into this the tallow, which has been melted out of the barrels by steam, is run, and is mixed with lime and water. This mixture is kept up to the intense heat of *six hundred degrees Fahrenheit* by steam, which is let into the outer cylinder at a pressure of *two hundred and fifty pounds to the square inch*. The water, being the heavier, sinks to the bottom of the copper cylinder, whence it is pumped and thrown on a perforated plate above the tallow, that it may fall through it in many little streams. This

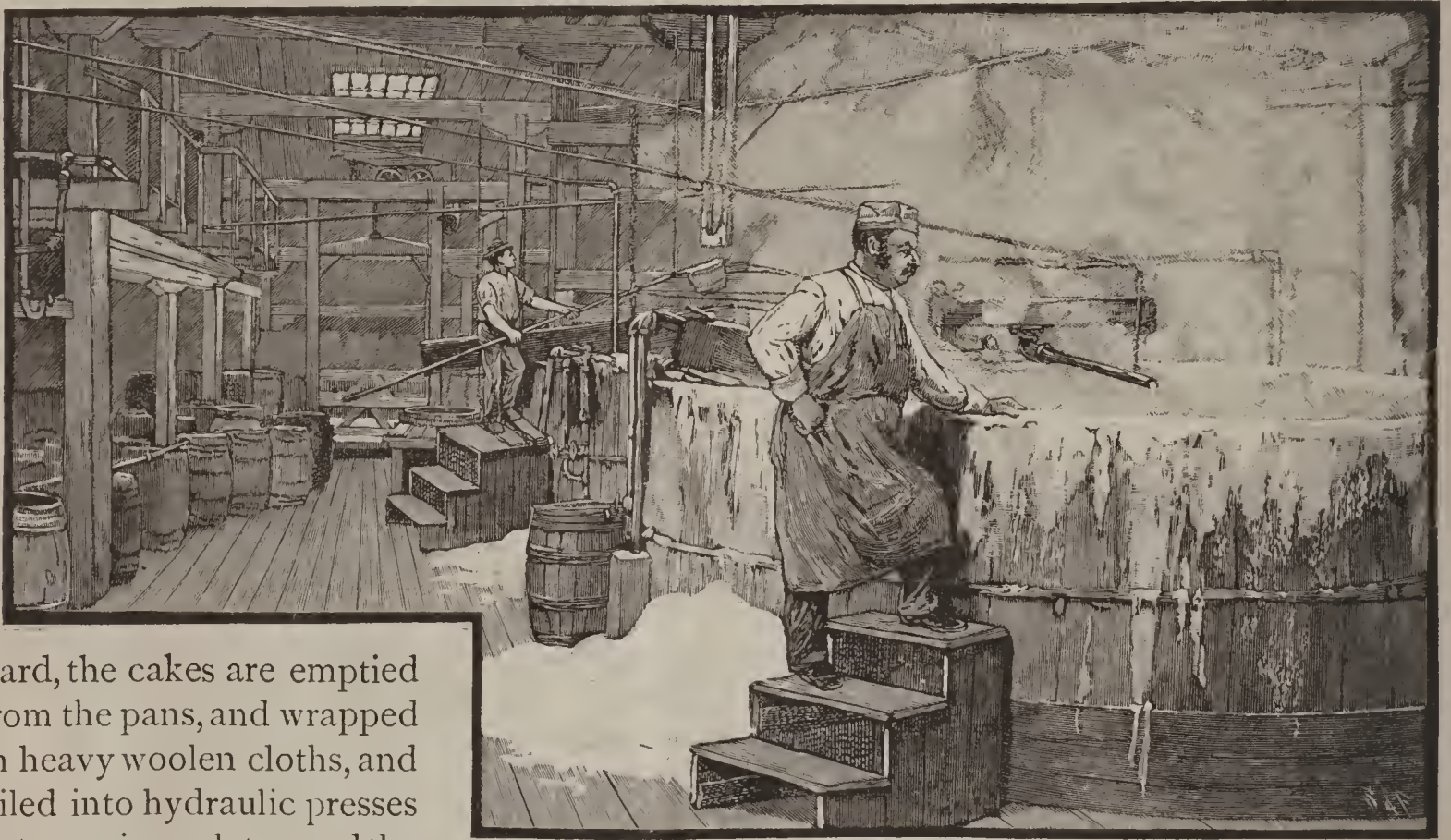
agitation is kept up for eight or nine hours, after which it is found that the lime has united with the tallow and formed a lime soap, while the water has consorted with the impurities, etc. The *intense heat* to which the tallow is subjected, and the *continuous washing* it undergoes, *destroy and remove any impurities* liable to produce disease there may be in the tallow, which of itself gives the Procter & Gamble Soap an immense advantage over all others, for it insures to the consumer a soap *absolutely pure*. No other firm exercises the same amount of care in preparing the "stock" for the boiling-kettles, for *the ordinary method is to empty the tallow or grease, from which none of the impurities have been removed, direct into the boiling-kettles*, and the process of manufacture usually pursued is such as to simply *warm into life any germs of disease*



MAKING LYE.

there may be in the grease or tallow.] The contents of the cylinder, after being allowed to remain at rest for a time, separate into two strata, the lime soap on top, the impurities and water below. These are blown off into separate vats by the power of steam. The cooling of the lime soap is a slow process. It is run into shallow pans, lined with enamel, and permitted to remain in a warm room two or three days. When it becomes

lower level than the first tank. The hot soda solution falls through the tray into the lower tank, carrying the lime with it. After being agitated, the lime settles to the bottom, carrying with it the carbonic acid, and all impurities. After being allowed to settle sufficiently the clear liquor, which is lye in its purest form, is drawn off into the soap-kettles, leaving the lime, etc., in the tank. It will be seen that *everything* that



BOILING.

hard, the cakes are emptied from the pans, and wrapped in heavy woolen cloths, and piled into hydraulic presses between iron plates, and the pressure applied. A dark oil gushes from the woolen, pours over the edges of the plates, and is caught by troughs conveniently arranged, from which it is conducted by iron pipes to the soap-kettles. This oil is known in commerce as Saponified Red Oil. The preparation and purifying of the lye by this firm is one of the most thorough known, insuring the removal of all foreign and deleterious matter. The highest grade of Carbonate of Soda is imported by them direct from England, from which they completely remove the carbonic acid by placing a large quantity in an immense iron tank filled with boiling water, and the entire mass kept hot and agitated by jets of steam. When the solution is complete, the hot liquor is drawn out upon a shallow iron tray having a perforated bottom. This tray contains a certain quantity of lime, and is suspended within and near the top of an iron tank, placed on a

has thus far gone into the soap-kettle has been *thoroughly purified and cleansed*, all of which Procter & Gamble have found necessary to have done under their own supervision to insure having it honestly performed, on the principle: "If you want anything well done, you must do it yourself."

The soap-kettles are large cylindrical vessels made of boiler-iron, open at the top and having a conical bottom. They are heated by means of iron steam-pipes coiled into an inverted cone to correspond with the shape of the bottom. Another coil or single ring of steam-pipes is placed near the bottom and perforated with numerous holes; this latter is termed the "open steam" or "blow" pipe, and the former the "close steam-pipe." They are used at different stages of the boiling, to effect a *thorough mingling and heating of the materials*. There are pipes

leading from the bottom of the kettle for the discharge of the "spent lye," and a large pipe near the bottom, through which the finished soap is drawn directly into the cooling-frames, as shown in the illustration (page

as it descends through it, it becomes dissolved in the water. This heavy solution precipitates to the bottom of the kettle, while the lighter soap, insoluble in salt water, floats above. This salt water, or "spent lye" as it



DIPPING.

10). A part of the side of the kettles at the top is arranged to be removed, to facilitate "dipping" the soap into frames. This method of emptying the kettles is adapted to thick soaps which cannot be conveniently drawn from the bottom.

Now for the boiling process. A quantity of the lye, prepared as described, is allowed to run into the soap-kettle, and when heated by steam is ready to combine with the oil, which is allowed to flow gradually upon the lye; more lye is added from time to time, as may be required, until, the oil having combined with the soda, the whole has become a uniform mass of neutral or weak soap, dissolved in the water which had contained the soda. Salt is then freely scattered over the surface of the soap, and

is termed, is drawn off below. Repeated additions of lye, as mentioned before, are made, and after boiling and salting out, are drawn off, until the soap has become sufficiently strong, or, in other words, completely saponified. It is then purified by running into it a quantity of water, which has the effect of thinning it, so that any chance impurities and any excess of lye, after sufficient time has elapsed for settling, may be drawn from the bottom of the kettle, a very complete and distinct separation having been effected. *The value of washing out the surplus or "free" lye cannot be overestimated, for the free lye would attack the fiber directly, and thus burn or rot the clothing; it will also change the color and make white goods yellow, and burn and redden the hands.*

After boiling for a period longer, to evaporate the surplus water, the soap is then ready to be dipped over the side of the kettle or drawn from the bottom through a large pipe closed by a valve easily moved by a wheel. The cooling-frames into which the soap is thus conveyed are iron boxes with wooden bottoms. These bottoms are provided with wheels, that the frame may be drawn to the proper place for filling, or cooling, or cutting. When the soap is sufficiently cool (from four to six days), it is

a "barring" table, where, by means of a small cog-wheel made to revolve under a rack, the slabs are forced against and between wires kept taut, and are thus divided into long bars. By a slight change of a shaft, the soap-cutter is enabled to push the long bars sidewise against another set of wires, which divide them into short or one-pound bars. The wires are set with perfect exactness, so that all the bars are of the same size and weight—one pound each. After being stamped by hand, the soap is

packed into boxes that have the weight of the box marked on each. Then each box of soap is weighed, and the exact net weight is marked upon every box, and the soap is now ready for market. It will be seen that the cutting, stamping, and packing are simple and inexpensive; the useless expense of pressing into fanciful shapes and wrapping in bright-colored papers is saved. The public pay many thousands of dollars every year for pressing and wrapping soap, that is of no benefit to the soap or to them; in fact, it is done in most cases to make a poor article look attractive and more salable—the old-fashioned square-cut bars are the most economical.

One leaves the works of Procter & Gamble fully impressed with the fact that they know the wisdom and value of "What is worth doing at all is worth doing well." The thoroughness with which everything is done in the production of their Mottled German Soap shows careful and intelligent attention of skillful men, and the soap itself, being made by the most approved



FILLING THE FRAMES.

"stripped," that is, the bolts which clamped the sides against the ends are withdrawn, and the sides and ends removed, leaving the cooled solid soap standing upon the bottom. It is now ready for the cutting-machine. The cutting is done by wires drawn through the soap horizontally. This changes it into slabs the width and length of the frame and two or more inches thick. These slabs are placed, five at once, upon

method and of the best of materials, thoroughly refined under their own supervision, is the very perfection of laundry soap; which water cannot penetrate and weaken, so that the last small piece is as good as a new bar; there are no acids or excess of alkali to injure the skin or clothing;—in short, it is what all laundry soap should be—*effective, durable, and economical.*

A good article that has achieved success

is always imitated, so it is but natural that there should be many imitations of Procter & Gamble's soap. The so-called Mottled German soaps are made principally of grease, though some contain a small percentage of red oil, simply as an excuse for calling them "red oil soaps." They owe their mottled appearance to the impurities which

them. "The effect of this is that *the excess of soda will eat or rot* anything that has been washed with the soap.

The reader can form no idea of the vast number of compounds that are given to the public under the name of soap. Fully nine-tenths is not what the buyer has a right to expect. The materials used are full of



STRIPPING.

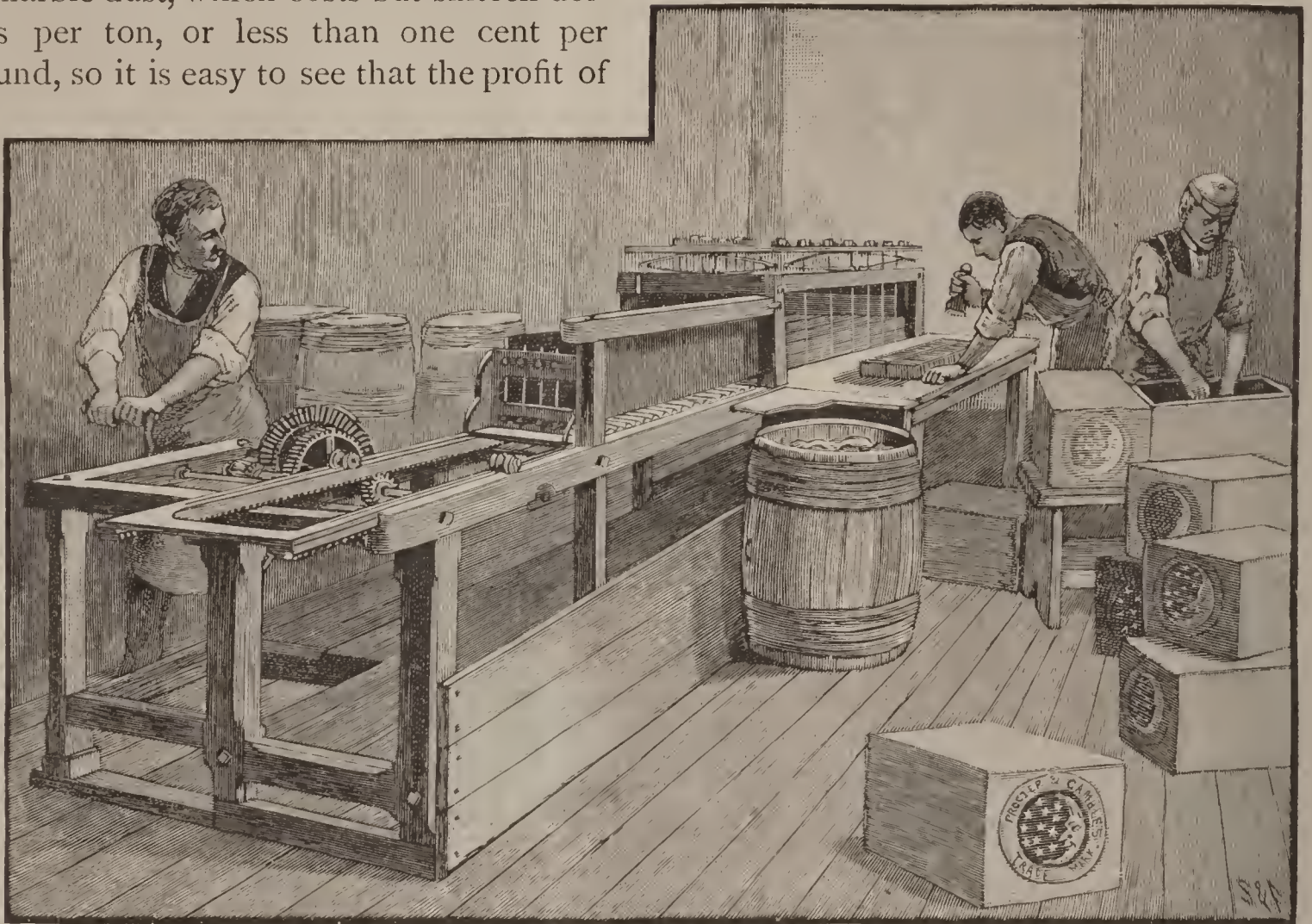
are suspended in the soap; they are more or less offensive in odor on account of being made of grease. The process by which many of these so-called Mottled German soaps are made is known as the "cold made" method, that is, the grease and lye are mingled together at the very moderate temperature of 110 deg. Fahrenheit. There is some chemical action, but the result is strong in alkali, and at the same time greasy to the touch, and will not produce an abundant lather; the *alkali not being thoroughly combined*, but "free" to a great extent, will *attack the fiber and burn the skin*. Water will easily penetrate them, weaken the alkali, it being "free," and thus render the compound a greasy, putty-like mass. There are many soaps of a pale straw-color, very clear about the edges, and having the appearance of being made of wax. They are really very attractive in appearance, much more so than Mottled German Soap, which is, it is true, "homely but honest." Most of these clear soaps are made of tallow, and contain a large percentage of rosin and water. They shrink as they grow older, so, in order to preserve their shape, a considerable quantity of sal-soda is incorporated in

impurities, and are too often made of decayed and putrid matter. Chemical science has shown how the noxious smells may be prevented, by the use of acids, etc., and by a plentiful addition of rosin to *cheapen* them, and perfume to hide the natural odor, they are passed out upon the unsuspecting purchaser. Fancy having your handkerchiefs, napkins, towels, and clothing washed with these compounds, yet there are many who will pay from ten to seventy-five cents for a small cake of toilet soap, but think anything is good enough for the laundry. *A little more attention to the soap used in the laundry would insure greater healthfulness.* When the pores of the skin are open by perspiration, the condition is favorable to absorbing into the system any impurities in the soap which the laundress may have failed to thoroughly rinse out of the garment, owing to the greasy and sticky condition of the soap used. Cases of fevers and diphtheria have frequently been traced to the use of soaps made of unfit materials, and cases of skin diseases without number to the same cause.

Not content with using poor materials, many soap-makers use what are known as "make-weights"; these are for the pur-

pose of increasing the profit of the manufacturer, without equivalent value to the consumer. The principal "make-weight" is marble dust, which costs but sixteen dollars per ton, or less than one cent per pound, so it is easy to see that the profit of

enable the manufacturer to sell water at the price of soap. A large volume might be written upon the adulteration of soap alone,



CUTTING AND PACKING.

the soap-maker is greatly increased; for with three-quarters of a pound of soap a quarter of a pound of marble dust may be incorporated, and the compound sold as a *pound of soap*. Another adulterant is the "magnesia drier," which, in addition to being a "make-weight," will help retain a large amount of water in the soap, and thus

but the brief description of soaps given in this little book is sufficient to enable the intelligent buyer to discriminate in favor of the best.

Remember, "the best is the cheapest." Economy of time and money, and relief from much of the drudgery of washing, are insured to all who use honestly made soap.

PROCTER & GAMBLE

MOTTLED GERMAN



FAC-SIMILE OF STAMP USED ON THE GENUINE MOTTLED GERMAN SOAP.



